

**XXIXth International Congress on Electrocardiology**  
**43rd International Symposium on Vectorcardiography**  
**and**  
**4th International Conference on Bioelectromagnetism**  
 2-5 July 2002, Montreal, Canada

**PRELIMINARY SCIENTIFIC PROGRAM**

**Wednesday, 3 July 2002**

- 8:30-9:00**      **Opening Remarks**
- 9:00-9:30**      **The Pierre Rijlant Lecture : Hein Wellens, Maastricht University**  
 Arrhythmology : Lessons from the past, promises for tomorrow
- 9:30-10:00**    **The Ragnar Granit Lecture: Fernando H. Lopes da Silva, Univ. of Amsterdam**  
 Nonlinear analysis of the EEG
- 10:30-12:30**    **Session E.1      Cellular Electrophysiology – Cellular Basis of Repolarization Related Arrhythmias (ISE Working Group on Cellular Electrophysiology)**
- 10:30-11:00    E.1.1 (Invited)    **C. Antzelevitch, Masonic Medical Research Laboratory, Utica, NY, USA**  
 Electrical heterogeneity in the heart
- 11:00-11:15    E.1.2              **M. Horakova, Dalhousie University, Canada**  
 Cellular basis of T and U waves and relationship to abnormal-repolarization related arrhythmias
- 11:15-11:30    E.1.3              **H.J. Duff, University of Calgary, Canada**  
 Mechanisms of K channel-based congenital long QT syndrome
- 11:30-11:45    E.1.4              **M. Chahine, Université Laval, Canada**  
 Mechanisms of Na-channel based congenital arrhythmic syndrome
- 11:45-12:00    E.1.5              **S. Nattel, Institut de cardiologie de Montréal, Canada**  
 Ionic remodeling and ventricular proarrhythmia: can acquired long QT syndrome be prevented ?
- 12:00-12:15    E.1.6              **M. Hiraoka, I. Kocic, Y. Hirano,**  
*Medical Research Institute, Tokyo Medical and Dental University, Japan*  
 Loss of rate-dependent changes in action potential duration of epicardial myocytes from cardiomyopathic hamsters
- 10:30-12:00**    **Session N.1      Biological Effects of Electromagnetic Fields**
- 10:30-11:00    N.1.1 (Invited)    **M.A. Stuchly, University of Victoria, Canada**  
 Biological effects of electromagnetic fields
- 11:00-11:15    N.1.2              **R. Habash, University of Ottawa, Canada**  
 Dosimetry for evaluating EM fields within human body
- 11:15-11:30    N.1.3              **M.S. Markov, EMF Therapeutics, Inc., Chatanooga, TN, USA**  
 Can cell free myosin phosphorylation be used as a tool for biological dosimetry?
- 11:30-11:45    N.1.4              **T. Kotnik, L.M. Mir, D. Miklavčič, University of Ljubljana, Slovenia**  
 Electroporation by unipolar and symmetrical bipolar rectangular electric pulses

11:45-12:00	N.1.5	<b>L.H. Deng, S.H. Karagiannoglou, W.I. Sakkas, G.D.O. Lowe, J.C Barbabel,</b> <i>Dalhousie University, Canada</i> The impedance measurement of human blood in relations to the hemorheological determinants
13:30-15:00	<b>Session E.2</b>	<b>Repolarization in standard ECG and in Holter Monitoring (Joint Session of ISE and ISHNE)</b>
13:30-14:00	E.2.1 (Invited)	<b>P. Coumel,</b> <i>Hôpital Lariboisière, Paris, France</i> Non-invasive evaluation of ventricular repolarization
14:00-14:15	E.2.2	<b>W. Zareba,</b> <i>University of Rochester Medical Center, Rochester, NY, USA</i> QT correction formulae for LQTS diagnosis
14:15-14:30	E.2.3	<b>P.W. Macfarlane,</b> <i>University of Glasgow, Glasgow, UK</i> Gender dependent normal limits of ST-T amplitudes
14:30-14:45	E.2.4	<b>J. Liebman,</b> <i>University Hospital, Case Western University, Cleveland, Ohio, USA</i> Repolarization in infants and children
14:45-15:00	E.2.5	<b>J.P. Couderc,</b> <i>University of Rochester Medical Center, Rochester, NY, USA</i> Area-based analysis of repolarization
<b>13:30-15:30</b>	<b>Session E.3</b>	<b>Computer Heart Models &amp; the Forward Problem of Electrocardiography (ISE Working Group on Modeling)</b>
13:30-14:00	E.3.1 (Invited)	<b>P.J. Hunter, A.J. Pullan,</b> <i>University of Auckland, Auckland, New Zealand</i> New developments in the Auckland heart model
14:00-14:15	E.3.2	<b>J. Sundnes, G.T. Lines, A. Tveito,</b> <i>Simula Research Laboratory, Lysaker, Norway</i> A second order scheme for solving the coupled bidomain and forward problem
14:15-14:30	E.3.3	<b>G.T. Lines, J. Sundnes, A. Tveito,</b> <i>Simula Research Laboratory, Lysaker, Norway</i> A domain embedding strategy for solving the bidomain equations on complicated geometries
14:30-14:45	E.3.4	<b>M.C. Trudel, R.M. Gulrajani, L.J. Leon,</b> <i>Université de Montréal, Canada</i> Electrotonic coupling reduces action potential duration gradients in the ventricle: a simulation study
14:45-15:00	E.3.5	<b>J.G. Stinstra, M.J. Peters,</b> <i>Twente University, The Netherlands</i> The forward problem in fetal electro/magnetocardiography
15:00-15:15	E.3.6	<b>A. van Oosterom,</b> <i>University of Nijmegen, The Netherlands</i> Singular value decomposition of the T wave: its link with a biophysical model of repolarization
15:15-15:30	E.3.7	<b>P.R. Johnston,</b> <i>Griffith University, Nathan, Queensland, Australia</i> Tissue conductivity and ST depression in a cylindrical left ventricle
<b>13:30-15:00</b>	<b>Session N.2</b>	<b>Electromagnetic Compatibility of Medical Devices &amp; Patient Safety Organizer and Session Chair: B. Segal, McGill University, Canada</b>
13:30-14:00	N.2.1 (Invited)	<b>H. Bassen,</b> <i>U.S. Food and Drug Administration, Rockville, MD, USA</i> Electromagnetic interference of medical devices and implications for patient safety
14:00-14:15	N.2.2	<b>A. Hedjiedj, M. Nadi,</b> <i>Université H. Poincaré de Nancy, France</i> Immunity of cardiac pacemakers to low frequency magnetic field
14:15-14:30	N.2.3	<b>K.-S. Tan, I. Hinberg,</b> <i>Health Canada, Ottawa, Canada</i>

14:30-14:45	N.2.4	Health Canada's research on interference effects of electromagnetic fields on implantable cardiac devices <b>D.A. Townsend</b> , <i>University of New Brunswick, Canada</i>
14:45-15:00	N.2.5	Wireless technology in health care: What are the legal risks? <b>B. Segal</b> , <i>McGill University, Canada</i>
<b>16:00-17:30</b>	<b>Session E.4</b>	<b>Pacing and Defibrillation (ISE Working Group on Arrhythmias)</b>
16:00-16:30	E.4.1 (Invited)	<b>R. Mehra</b> , <i>Medtronic, Inc., Minneapolis, MN, USA</i> Cardiac pacing and defibrillation
16:30-16:45	E.4.2	<b>N. Varma, B. Stambler, J. Liebman</b> , <i>University Hospital, Case Western University, Cleveland, Ohio, USA</i> Electrical resynchronisation by biventricular pacing: preliminary insights from vectorcardiography
16:45-17:00	E.4.3	<b>Z. El Syed, E. Vigmond, S. Kimber, L.J. Leon</b> , <i>University of Calgary, Canada</i> Cross correlation analysis for the estimation of defibrillation shock energy
17:00-17:15	E.4.4	<b>A. Tang</b> , <i>Ottawa Heart Institute, Ottawa, Canada</i> Title to come
17:15-17:30	E.4.5	<b>B. Thibault</b> , <i>Institut de cardiologie de Montréal, Montréal, Canada</i> Title to come

#### Thursday, 4 July 2002

<b>8:30-10:00</b>	<b>Session Y.1</b>	<b>Young Investigators' Competition – Electrocardiology Track</b>
8:30-8:45	Y.1.1	<b>P.C. Dorostkar, P. Piros, A.L. Waldo, M.D. Carlson, N. Varma, J.A. Mackall, B.S. Stambler, M.M. Scheinman</b> , <i>Case Western Reserve University, Cleveland, OH, USA</i> Electroanatomic mapping unsmasks different mechanisms in patients with atriotomies for congenital heart disease
8:45-9:00	Y.1.2	<b>K. Shinagawa, Y-F. Shi, J-C. Tardif, T-K. Leung, S. Nattel</b> , <i>Institut de cardiologie de Montréal, Université de Montréal, Canada</i> Dynamic nature of the atrial fibrillation substrate during the development and reversal of heart failure in dogs
9:00-9:15	Y.1.3	<b>E.J. Vigmond, S. Kuo, N.A. Trayanova</b> , <i>University of Calgary, Canada.</i> Action potential duration heterogeneity in a computer model of the atria
9:15-9:30	Y.1.4	<b>O. Skipa, M. Nalbach, F. Sachse, C. Werner, O. Dössel</b> , <i>Universität Karlsruhe (TH), Germany</i> Transmembrane potential reconstruction in anisotropic heart model
9:30-9:45	Y.1.5	<b>B. Messnarz, B. Tilg, R. Modre, G. Fischer, F. Hanser, P. Wach</b> , <i>Graz University of Technology, Austria</i> A new spatio-temporal regularization approach to the electrocardiographic inverse problem
9:45-10:00	Y.1.6	<b>M. Lindholm, J. Nenonen, M. Karvonen, M. Liehr, J. Schreiber, J. Haueisen, T. Katila</b> , <i>Helsinki University of Technology, Finland</i> A phantom study on the effects of a thin inhomogeneity layer on body surface potential maps

<b>8:30-10:00</b>	<b>Session Y.2</b>	<b>Young Investigators' Competition – Neurophysiology Track</b>
8:30-8:45	Y.2.1	<b>C. Bolduc, A-M. Daoust, É. Limoges, M-A. Gingras, C.M.J. Braun, R. Godbout, <i>Université de Montréal, Canada</i></b> A study of EEG hemispheric asymmetry during REM sleep in young healthy adults
8:45-9:00	Y.2.2	<b>P. Vitali, G. Avanzini, L. Caposio, E. Fallica, L. Grigoletti, E. Maccagnano, B. Rigoldi, G. Rodriguez, F. Villani, <i>University of Genova, Italy</i></b> Cortical location of 10-20 system electrodes on normalized cortical MRI surfaces
9:00-9:15	Y.2.3	<b>L.A. Neilson, Z.J. Koles, <i>University of Alberta, Canada</i></b> The finite volume head model for EEG source localization
9:15-9:30	Y.2.4	<b>C.G. Bénar, R.N. Gunn, B. Champagne, J. Gotman, <i>McGill University, Canada</i></b> Probabilistic methods for the EEG inverse problem
9:30-9:45	Y.2.5	<b>O. Portniaguine, S. Nagarajan, D. Hwang, K. Sekihara, C. Johnson, <i>University of Utah, USA</i></b> Minimum support method for MEG source localization
9:45-10:00	Y.2.6	<b>E.W. Pang, A. Hunjan, R. Sharma, S. Holowka, H. Otsubo, <i>University of Toronto, Canada</i></b> Auditory M100 in children: Developmental changes reflected in the tangential neural source
<b>10:30-12:00</b>	<b>Session P.1</b>	<b>Poster Session (Posters P.1.1 - P.1.16 are in the Young Investigators' Poster Competition)</b>
	P.1.1	<b>G. Li, B. He, <i>The University of Illinois at Chicago, USA</i></b> Noninvasive three-dimensional localization of origin of cardiac activation by means of a heart model
	P.1.2	<b>F. Eberhardt, U. Hofmann, M. Lipphardt, UKH Wiegand, <i>University Hospital Luebeck, Germany</i></b> Continuous analysis of atrial electrograms in DDD-pacemakers and bipolar atrial leads using an automated signal processing system
	P.1.3	<b>M. Nalbach, O. Skipa, O. Dössel, <i>Universität Karlsruhe (TH), Karlsruhe, Germany</i></b> Investigation of the source spaces of ECG electrode arrangements
	P.1.4	<b>D. Fan, E. Kessler, P. Lam, D. Hoffman, C. Geller, L. Harris, J. Stelzer, P. Schweitzer, <i>The Heart Institute, Beth Israel Medical Center, New York, NY, USA</i></b> Identification of patients who derive mortality benefit from ICD implantation by EPS with concurrent revascularization
	P.1.5	<b>T. Ristimäe, A. Kaasik, R. Teesalu, <i>University of Tartu, Estonia</i></b> Elevated level of C-reactive protein associates with pronounced autonomic imbalance after myocardial infarction
	P.1.6	<b>C.C. Lin, T.F. Yang, C.M. Chen, I.F. Yang, <i>National Taiwan University of Science and Technology, Taipei, Taiwan</i></b> Spectrotemporal mapping of signal averaged ECG in Taiwanese chronic renal failure patients
	P.1.7	<b>Garcia EV, Marques JLB, <i>Instituto de Engenharia Biomédica, CTC – UFSC, Florianópolis / SC, Brazil</i></b> A New Index for the Quantitation of the Ventricular Repolarization
	P.1.8	<b>J.B. Santo, E. Chevrier, P. L'Esperance, D.B. Boivin, <i>McGill University, Canada</i></b> REM sleep across the menstrual cycle in women with premenstrual dysphoric disorder
	P.1.9	<b>M.-A. Gingras, S. Chouinard, C. Bolduc, R. Godbout,</b>

- Université du Québec à Montréal, Canada*  
 Analysis of the first night effect on EEG hemispheric asymmetry during waking state in young healthy adult
- P.1.10 **B. Vanrumste, M. Mohr, P.J. Bones, University of Canterbury, New Zealand**  
 A multigrid solver in EEG source analysis applying the finite difference method
- P.1.11 **K. Whittingstall, G. Stroink, L. Gates, J.F. Connolly, G.A. Finley, Dalhousie University, Canada**  
 Influence of realistic head geometry differences on EEG source localization
- P.1.12 **X. Zhang, W. van Drongelen, K. Hecox, V.L. Towle, D.M. Frim, A. McGee, J. Lian, B. He, University of Illinois at Chicago, USA**  
 Cortical imaging of interictal epileptiform activity using an inhomogeneous spherical head model
- P.1.13 **J. Xiang, S. Chuang, H. Otsubo, S. Holowka, R. Sharma, A. Hunjan, The Hospital for Sick Children, Toronto, Canada**  
 Magnetic localization and organization of somatosensory cortex in children
- P.1.14 **E.W. Tsang, M.A. Persinger, S.A. Koren, Laurentian University, Canada**  
 Alterations of affective and autonomic responses with transcerebral complex magnetic fields: daily versus weekly schedule
- P.1.15 **J.L. Perez Velazquez, M.A. Cortez, O.C. Snead III, R. Wennberg, The Hospital for Sick Children, Toronto, Canada**  
 Intermittency and period doubling as dynamical regimes in epileptiform activity
- P.1.16 **C. Shang, Emory University School of Medicine, Atlanta, USA**  
 Bioelectromagnetism of growth control – a confirmed theory and its implications
- P.1.17 **J. Lian, A. Goldstein, E. Donchin, B. He, University of Illinois at Chicago, USA**  
 Spatiotemporal imaging of cortical activations during verbal memory encoding tasks
- P.1.18 **A. Liston, L. Enfield, R. Bayford, D. Holder, University College, London, UK**  
 A potential method for imaging neuronal depolarization in the brain by electrical impedance tomography
- P.1.19 **K. Peczalski, D. Wojciechowski, W. Jernajczyk, P. Sionek, M. Kowalewski, Institute of Biocybernetics & Biomedical Engineering, Poland**  
 The pathology of the brain bioelectrical activity in patients during syncope induced by head up tilt test
- P.1.20 **C.I. Lin, C.C. Ou, Y.J. Chen, Y.C. Chen, S.A. Chen, National Defense Medical Center, Taipei, Taiwan**  
 Electrophysiology and arrhythmogenic activity of dog left inferior pulmonary veins
- P.1.21 **J. Wei, H.C. Liu, F.Y. Lee, C.I. Lin, National Defense Medical Center, Taipei, Taiwan**  
 Electromechanical effects of cyclopiazonic acid on myopathic human and hamster ventricular myocardium
- P.1.22 **T.M. Wang, H.N. Luk, J.R. Sheu, C.E. Chiang, Taipei Veterans General Hospital and National Yang-Ming University, Taipei, Taiwan**  
 Barium-induced abnormal automaticity and withdrawal of acetylcholine-induced triggered activity in pulmonary vein sleeves from normal healthy dogs
- P.1.23 **M. Sugao, A. Fujiki, K. Mizumaki, T. Tsuneda, K. Nishida, M. Sakabe, H. Inoue, Toyama Medical and Pharmaceutical University, Toyama, Japan**  
 Repolarization abnormality in idiopathic ventricular fibrillation with respect to QT-RR relation
- P.1.24 **M. Hassimoto, M. Kuwahara, T. Harada, N. Kaga, M. Obata, H. Mochizuki, H. Tsubone, The University of Tokyo, Tokyo, Japan**  
 Diurnal variation of the QT interval in rhesus monkeys
- P.1.25 **R. González, N. Gómez, M.M. Rivero,**

*International Society of Electrocardiology, La Habana, Cuba*

- P.1.26 **W. Carson, Y.Z. Tseng**, *National Taiwan University Hospital, Taipei, Taiwan*  
Algorithm for the real-time QT interval study  
Maximal spatial ST-Vector patterns in patients with acute anterior myocardial infarction
- P.1.27 **M.G.M. Falcão Andrea, P.J. Moffa, W.A. Chalela, B.A. Ferreira, A.H. Uchida, C.A. Pastore, J.C. Kreling, C.G. Oliveira, J.C. Meneghetti, J. Jr Soares, J.F. Ramires**, *University of São Paulo Medical School, São Paulo, Brazil*  
GATED-SPECT myocardial scintigraphy in left bundle branch block: a study in patients with and without coronary artery disease
- P.1.28 **I. Cygankiewicz, J.K. Wranicz, H. Bolinska, J. Zaslonka, W. Zareba**, *University of Lodz, Poland*  
Heart rate turbulence in patients with coronary artery disease
- P.1.29 **J. Viik, R. Lehtinen, J. Malmivuo**, *Tampere University of Technology, Finland*  
Improved detection of coronary artery disease in women using ST/HR hysteresis method
- P.1.30 **A. Kaasik, T. Ristimäe, R. Teesalu**, *University of Tartu, Estonia*  
Left ventricular late potentials in ventricular hypertrophy may signal about increased arrhythmogenicity after acute myocardial infarction
- P.1.31 **G. Duray, A. Székely, T. Borsányi, A. Szabó, E. Marosi, I. Préda**, *National Health Service Center, Budapest, Hungary*  
Patients underwent revascularisation and slow pathway ablation did not report typical angina by supraventricular tachycardia
- P.1.32 **A.J. Robertson, E. Clark, A. van Oosterom, P.W. Macfarlane**, *University of Glasgow, UK*  
ECG monitoring using a limited lead set
- P.1.33 **R. Grigore, C. Sutescu, C. Ginghina**, *County Hospital Galati & Hospital Fundeni, Bucharest, Romania*  
Aspects of repolarization after acute phase in evolution of myocardial infarction with disappearance of necrosis Q wave

**13:30-15:00 Session E.5 Cardiac monitoring & Coronary syndromes**

- 13:30-14:00 E.5.1 (Invited) **M. Dellborg**, *University Hospital/Ostra, Sweden*  
ST-monitoring in acute coronary syndrome
- 14:00-14:15 E.5.2 **Y. Birnbaum, D. Ware**, *University of Texas Medical Branch, USA*  
Electrocardiographics of reperfusion. How should they be used in the clinical settings?
- 14:15-14:30 E.5.3 **D. Fitchett, M. Kutryk, A. Cheema, D. Stewart**, *University of Toronto, Canada*  
Electro-mechanical mapping of the left ventricle for the assessment of myocardial viability. A platform for intra-myocardial injection of gene therapy to promote myocardial angiogenesis
- 14:30-15:00 E.5.4 **J.B. Nasmith**, *University of Toronto, Canada*  
ST up, ST down; different pathologies?

**13:30-15:30 Session E.6 The Inverse Problem of Electrocardiography**

- 13:30-14:00 E.6.1 (Invited) **Y. Rudy**, *Case Western Reserve University, Cleveland, Ohio, USA*  
Abnormal repolarization: simulation of mechanism and noninvasive electrocardiographic imaging

14:00-14:15	E.6.2	<b>J. Hyttinen, J. Lötjönen, P. Kauppinen, M. Saarilampi, R-K. Mäenpää, M. Jerosch-Herold, J. Zhang, R. Patterson, J. Malmivuo,</b> <i>Tampere University of Technology, Tampere, Finland</i> Dynamic model of the thorax for ECG and ICG studies
14:15-14:30	E.6.3	<b>G. Fisher G, B. Tilg, R. Modre, F. Hanser, B. Messnarz, P. Wach,</b> <i>University for Health Informatics and Technology Tyrol, Innsbruck, Austria</i> A Galerkin boundary element formulation for cardiac activation time imaging
14:30-14:45	E.6.4	<b>G. Fisher, B. Tilg, R. Modre, F. Hanser, B. Messnarz, F. Hintringer, T. Berger, O. Pachinger, F.X. Roithinger,</b> <i>University for Health Informatics and Technology Tyrol, Innsbruck, Austria</i> Noninvasive activation time imaging in the human atria
14:45-15:00	E.6.5	<b>B. He, G. Li,</b> <i>University of Illinois at Chicago, USA</i> Noninvasive three-dimensional myocardial activation time imaging by means of heart-excitation-model
15:00-15:15	E.6.6	<b>Y. Serinagaoglu, D.H. Brooks, R.S. MacLeod,</b> <i>Northeastern University, Boston, MA, USA</i> Enhancing inverse electrocardiography with sparse noisy measurements of epicardial potentials
15:15-15:30	E.6.7	<b>A. Czerwińska, M. Doros, K. Kolebska,</b> <i>Institute of Biocybernetics and Biomedical Engineering PAS, Warsaw, Poland</i> The determination of integral epicardial potential maps by non-invasive method
<b>13:30-15:00</b>	<b>Session N.4</b>	<b>Transcranial Stimulation</b>
13:30-14:00	N.4.1 (Invited)	<b>R. Ilmoniemi,</b> <i>Helsinki University Central Hospital, Finland</i> Transcranial magnetic stimulation combined with EEG
14:00-14:15	N.4.2	<b>N. Al-Mutawaly, H. de Bruin,</b> <i>McMaster University, Canada</i> Measuring the induced electrical fields in 3-dimensions when applying magnetic stimulation to a spherical target
14:15-14:30	N.4.3	<b>N. Al-Mutawaly, H. de Bruin, R.D. Findlay,</b> <i>McMaster University, Canada</i> Magnetic nerve stimulation: a comparison between mono-phasic and bi-phasic waveforms
14:30-14:45	N.4.4	<b>P. Kauppinen, P. Laarne, M. Tenhunen, S. Oja,</b> <i>Ragnar Granit Institute, Tampere University of Technology, Finland</i> Comparison of simulated electrode configurations for transcranial stimulation
14:45-15:00	N.4.5	<b>L. Enfield, D. Holder,</b> <i>University College, London, UK</i> Electrical impedance tomography of brain function: Overview and technical considerations
<b>16:00-17:30</b>	<b>Session E.7</b>	<b>Body Surface Potential Mapping (ISE Working Group on Body Surface Potential Mapping)</b>
16:00-16:30	E.7.1 (Invited)	<b>B. Taccardi, B.B. Punske,</b> <i>The University of Utah, Salt Lake City, Utah, USA</i> Body surface and epicardial ECG mapping: state of the art and future perspectives
16:30-16:45	E.7.2	<b>W.G. Besio, P.P. Tarjan,</b> <i>University of Miami, Miami, USA</i> Atrial activation pattern from surface Laplacian electrocardiograms of humans.
16:45-17:00	E.7.3	<b>C.A. Pastore, N. Samesima, N. Tobias, E. Kaiser, S. Nishioka, A. Pedrosa, F.M. Martinelli, S.R. Arcêncio, J.A.F. Ramires,</b> <i>University of São Paulo Medical School, São Paulo, Brazil</i>

17:00-17:15	E.7.4	<p>QT interval dispersion in myotonic muscular dystrophy: Analysis through the body surface potential mapping</p> <p><b>M. Tysler, M. Turzova, J. Svehlikova,</b> <i>Slovak Academy of Sciences, Bratislava, Slovakia</i></p>
17:15-17:30	E.7.5	<p>Repolarization changes displayed in surface ARI maps: a simulation study</p> <p><b>M. Fereniec, M. Kacprzak, G. Karpinski, R. Maniewski, G. Opolski, D. Ircha,</b> <i>Institute of Biocybernetics and Biomedical Engineering, Warsaw, Poland</i></p> <p>Evaluation of T-wave morphology in high-resolution ECG mapping</p>
<b>16:00-17:30</b>	<b>Session N.3</b>	<b>Magnetoencephalography and Magnetocardiography</b>
16:00-16:30	N.3.1 (Invited)	<p><b>M. Hämäläinen,</b> <i>Helsinki University of Technology, Finland</i></p> <p>The role of magnetoencephalography in functional brain imaging</p>
16:30-16:45	N.3.2	<p><b>G.J.M. Huiskamp, W. van der Meij, A.C. van Huffelen,</b> <b>O. van Nieuwenhuizen,</b> <i>University Medical Center Utrecht, The Netherlands</i></p> <p>Spatio-temporal EEG-MEG analysis of Rolandic spikes</p>
16:45-17:00	N.3.3	<p><b>S.A. Holowka, S.H. Chuang, E. Pang, R. Sharma, A. Hunjan, J. Xiang,</b> <b>N. Chuang, O.C. Snead III, J.T. Rutka,</b> <i>The Hospital for Sick Children, Toronto, Canada</i></p> <p>The 3-D reconstruction of magnetic source image data and its application in a neurosurgical guidance system</p>
17:00-17:15	N.3.4	<p><b>K. Sternickel, N. Tralshawala, A. Bakherev, N. Korsun, A. Braginski,</b> <b>P. Dworkin, E. Allen, P. Thomson, V. Nolan, R. Falk, J. Chen, J. Clarke,</b> <i>CardioMag Imaging, Inc., Schenectady, NY, USA</i></p> <p>Unshielded measurements of cardiac electric activity using magnetocardiography</p>

## Friday, 5 July 2002

<b>8:15-10:00</b>	<b>Session E.8</b>	<b>Neurocardiology</b>
08:15-08:45	E.8.1 (Invited)	<p><b>R.D. Foreman, J.I. Ardell, J.A. Armour, B. Linderoth, M.J.L. DeJongste,</b> <i>University of Oklahoma, Oklahoma City, OK, USA</i></p> <p>Basic principles of neurocardiology in health and disease</p>
08:45-09:00	E.8.2	<p><b>P.L. Pagé,</b> <i>Université de Montréal, Canada</i></p> <p>Atrial patterns of autonomic neuronal projections: surgical implications in the treatment of atrial fibrillation</p>
09:00-09:15	E.8.3	<p><b>A. Armour,</b> <i>Université de Montréal, Canada</i></p> <p>Cardiac electrical dysfunction and the <i>little brain</i> on the heart</p>
09:15-09:30	E.8.4	<p><b>R. Cardinal,</b> <i>Université de Montréal, Canada</i></p> <p>Neurocardiological studies in chronically ischemic canine ventricular myocardium</p>
09:30-09:45	E.8.5	<p><b>E. Fallen,</b> <i>McMaster University, Canada</i></p> <p>Utility of signal processing for detection of human viscerosensory perception</p>
09:45-10:00	E.8.6	<p><b>R.S. Sheldon,</b> <i>University of Calgary, Canada</i></p> <p>A reality-based paradigm for heart rate variability</p>
<b>8:30-10:00</b>	<b>Session N.6</b>	<b>The Inverse Problem of Electroencephalography</b>
8:30-9:00	N.6.1 (Invited)	<p><b>B. He, J. Lian,</b> <i>University of Illinois at Chicago, USA</i></p>



		Electrophysiological neuroimaging: Solving the inverse problem of electroencephalography and beyond
9:00-9:15	N.6.2	<b>C.E. Acar, N.G. Gençer</b> , <i>Middle East Technical University, Turkey</i> A high performance PC-based parallel computing platform for electro-magnetic source imaging
9:15:-9:30	N.6.3	<b>Z. Akalin, N.G. Gençer</b> , <i>Middle East Technical University, Turkey</i> Investigating the effects of eye conductivity on EMSI forward problem using a realistic BEM head model
9 :30-9:45	N.6.4	<b>S. Finke, R.M. Gulrajani, J. Gotman</b> , <i>Université de Montréal, Canada</i> Skull conductivity errors and the inverse problem of electroencephalography
9:45-10:00	N.6.5	<b>F. Babiloni, C. Babiloni, F. Carducci, L. Carotenuto, P.M. Rossini, F. Cincotti</b> , <i>University of Rome "La Sapienza", Italy</i> Estimation of cortical sources of EEG potentials by using surface Laplacian
<b>10:30-12:00</b>	<b>Session P.2</b>	<b>Poster Session</b>
	P.2.1	<b>M.S. Tverskaya, V.V. Karpova, V.I. Kobrin, V.Yu. Klyuchikov</b> , <i>Russian State Medical University, Moscow, Russia</i> Sympathicoadrenal system: unfavorable changes with regard to cardiac arrhythmias in massive pulmonary embolism
	P.2.2	<b>M. Kuwahara, Y. Noguchi, S. Nabeta, H. Tsubone, E. Kumagai, H. Tsutsumi, M. Tanigawa</b> , <i>The University of Tokyo, Tokyo, Japan</i> Diurnal variation of the QT interval in miniature swine: relationship to autonomic nervous function
	P.2.3	<b>M. Yamamoto, A. Kijima, M. Sato, M. Suzuki, H. Sato</b> , <i>University, Sandai, Miyagi, Japan</i> Autonomic nervous activity during graded head-up tilt
	P.2.4	<b>A.C. Tsai, H.W. Chiu</b> . <i>Institute of Medical Informatics, Taiwan</i> Relationship between heart rate variability and electrolyte concentration in chronic renal failure patients under hemodialysis
	P.2.5	<b>P.S. Mckechnie, R.M. Hamilton, P.W. Macfarlane</b> , <i>University of Glasgow, UK</i> Exercise levels predict cardiac vagal tone as measured by the NeuroScope
	P.2.6	<b>E.J. Tkacz, P. Kostka, D. Komorowski, T. Palko, Z. Religa, P. Kolsut</b> , <i>Institute of Heart Prostheses, Zabrze, Silesia, Poland</i> A new noninvasive method for evaluation of heart pathophysiology after transplantation
	P.2.7	<b>A. Kurita, T. Atsui, T. Ishizuka, B. Takase, K. Satomura, K. Hagusawa</b> , <i>National Defense Medical College, Tokorozawa, Japan</i> Evaluation of antianginal agents on autonomic nerve functions by noninvasive ECG and catecholamine levels in post-myocardial infarction patient
	P.2.8	<b>J. Troquet, R. Evrard</b> , <i>Université de Liège, Belgium</i> On the number of surface extrema of the potential generated by a single dipole in an elliptical cylinder
	P.2.9	<b>I.N. Konovalova, V.I. Kobrin, M.G. Konovalov, M.S. Tverskaya</b> , <i>Russian State Medical University, Moscow, Russia</i> A study of the level of fibrillation in 3-D medium of myocardium.
	P.2.10	<b>J.K. Wrancz, I. Cygankiewicz, M. Chudzik</b> , <i>University of Lodz, Lodz, Poland</i> Pacemaker Actros memory data vs Holter monitoring in detection of pacing and sensing episodes
	P.2.11	<b>K. Peczalski, D. Wojciechowski, T. Palko</b> , <i>Laboratory of Clinical Bioengineering, Warsaw, Poland</i>

- The cardiac pacing in syncope treatment - the recognition algorithms for early syncope detection
- P.2.12 **C.A. Pastore, N.M. Tobias, E. Kaiser, N. Samesima, F.M. Martinelli, A. Pedrosa, S. Nishioka, S. Siqueira, U.R. Lourenço, L.M. Atanes, J.A.F. Ramires**, *University of São Paulo Medical School, São Paulo, Brazil*  
Electrocardiographic, vectorcardiographic and body surface potential mapping analyses of patients with congestive heart failure and left bundle branch block, treated with biventricular pacing
- P.2.13 **M. Al Akkad, E. Vigmond, L.J. Leon**, *University of Calgary, Alberta, Canada*  
A model study of the effects of extracellular shocks on cardiac tissue
- P.2.14 **M. Doros, A. Czerwińska, K. Kolebska**, *Institute of Biocybernetics and Biomedical Engineering, Warsaw, Poland*  
Creating the 3D thorax model with reconstruction of contours of body organs used in determining the epicardial maps
- P.2.15 **M. Sobieszczanska, J. Jagielski, L. Rusiecki**, *Wroclaw Medical University, Poland*  
Location of coronary artery stenosis using BSPM and new approach to ECG signal decomposition
- P.2.16 **E.V. Blinova, T.A. Sakhnova, Atkov O Yu, V.G. Trunov, E.A.I. Aidu, L.I. Titomir**, *Cardiology Research Complex and Russian Acad. of Sciences, Moscow, Russia*  
Mapping of repolarization duration in normal subjects by DECARTO technique
- P.2.17 **H.G. Puurtinen, M. Sipilä, P. Kauppinen, J. Hyttinen, J. Malmivuo**, *Tampere University of Technology, Tampere, Finland*  
256-channel electrocardiography in arrhythmia analysis and validation of model investigations
- P.2.18 **M. Stenroos, K. Simelius, I. Tierala, J. Nenonen, L. Toivonen, T. Katila**, *Helsinki University of Technology, Finland*  
The effect of location of limb electrodes on 12-lead ECG and body surface potential mapping
- P.2.19 **E. Szűcs, M. Medvegy, G. Duray, T. Bauernfeind, F. Molnár, R.A. Nadeau, I. Préda**, *Department of Cardiology and Internal Medicine, Budapest, Hungary*  
Possible prediction of coronary angiographic results with the use of the series of body surface potential mapping
- P.2.20 **T. Bauernfeind, M. Medvegy, G. Duray, E. Szűcs, T. Borsányi, K. Szakolczay, I. Préda**, *Department of Cardiology and Internal Medicine, Budapest, Hungary*  
Resting body surface maps combined with nitroglycerine test may predict elevated left atrial pressure due to exercise induced ischemia
- P.2.21 **M.S. Molina, A.M. Benjó, D. Favarato, N.M. Tobias, M. Nigri, A.C.P. Chagas, J.A.F. Ramires, C.A. Pastore**, *University of São Paulo Medical School, Brazil*  
Reducing errors in segmental analysis (SA) for pediatric EKG using a complementary software
- P.2.22 **D.M. Schreck, C. Brotea, S. Shah**, *Capital Health System, Summit, NJ, USA*  
Derivation of the 12-lead electrocardiogram using abstract factor analysis and simplex optimization
- P.2.23 **P. Ginefra, E.C. Barbosa, F.G. Brasil, A.S. Bomfim, S.H. Boghossian, P.R.B. Barbosa, F.F.M. Albanesi**, *Sociedade Brasileira de Cardiologia, Rio de Janeiro, Brazil*  
Low voltage of the P wave on 12-lead electrocardiogram in patients with severe cardiopathies and electrical ventricular abnormalities: The paradoxal P wave. A preliminary report
- P.2.24 **V.K. Tashchuk, S.M. El-Khalifa, V.O. Pavliuk, I.A. Tashchuk**

- Bukovinian State Medical Academy, Chernivtsy, Ukraine*  
ECG quantitative analysis: Khalfin's method of differentiation
- P.2.25 **W. Carson, J.K. Wang, Y.Z. Tseng,**  
*National Taiwan University Hospital, Taipei, Taiwan*  
Vectorcardiographic features in patients receiving transcatheter closure of atrial septal defect
- P.2.26 **S. Jankowski, J. Tijink, G. Vumbaca, M. Balsi, G. Karpinski,**  
*Warsaw University of Technology, Warsaw, Poland*  
Support vector machine for the recognition of atrial and ventricular depolarization in Holter ECG recordings
- P.2.27 **A. Rouane, P. Bru, P.A. Chapelon, A. Hedjiedj, M. Nadi M,**  
*Université H. Poincaré de Nancy I, France*  
Radiofrequency ablation versus high-frequency ablation in vivo comparison
- P.2.28 **A.D. Corlan, R. Corlan, L. De Ambroggi,** *University of Milan, Italy*  
Variability of simulated ECG autocorrelation maps with electrode placement
- P.2.29 **D.O.H. Suzuki, A. Ramos, J.L.B. Marques,**  
*Federal University of Santa Catarina, Brazil*  
Graphical interface for modeling the electric field and ionic charge distribution in biological tissue
- P.2.30 **A. Taube, E. Siores, R. Avakian, S. Vesnin,**  
*Swinburne University of Technology, Australia*  
Early diagnosis of breast cancer by microwave radiation
- P.2.31 **A. Bortkiewicz, E. Gadzicka, W. Szymczak,**  
*Nofer Institute of Occupational Medicine, Poland*  
Physiological effects of exposure to electromagnetic fields emitted by mobile phones – an experimental study
- P.2.32 **E. Gadzicka, A. Bortkiewicz, M. Zmyslony,**  
*Nofer Institute of Occupational Medicine, Poland*  
Blood pressure disturbances in workers exposed to UHF-VHF electromagnetic fields
- 13:30-15:00 Session E.9 Cardiac Activation Mapping**
- 13:30-14:00 E.9.1 (Invited) **E. Downar,** *Toronto General Hospital, Toronto, Canada*  
Cardiac activation mapping
- 14:00-14:15 E.9.2 **M. Potse, A.C. Linnenbank, C.A. Grimbergen,**  
*Academic Medical Center, University of Amsterdam, The Netherlands*  
Automated generation of isochronal maps in the presence of activation block
- 14:15-14:30 E.9.3 **R. Lemery,** *Ottawa Heart Institute, University of Ottawa, Canada*  
Simultaneous bi-atrial non-contact mapping
- 14:30-14:45 E.9.4 **A. Pisapia, J. Faure, M. Bremondy, A. Ferracci, G. Duport,**  
*Hôpital Saint-Joseph, Marseille, France*  
Three dimensional catheter positioning during radiofrequency ablation in patients with atypical flutters on scare
- 14:45-15:00 E.9.5 **D. Jones,** *University of Western Ontario, Canada*  
Atrial arrhythmias: localization and role for cryosurgery
- 13:30-15:00 Session E.10 Instrumentation and Methods  
(ISE Working Group on ECG Core Labs)**
- 13:30-13:45 E.10.1 **L.I. Titomir, A.A. Mikhnev, V.G. Trunov, E.A.I. Aidu,**

		<i>Russian Academy of Sciences, Moscow, Russia</i>
		NEKTAL-16 lead system for non-invasive display of the cardioelectric field on an imaging sphere
13:45-14:00	E.10.2	<b>P. Kauppinen, A. Haapalainen, J. Hyttinen, J. Malmivuo,</b> <i>Tampere University of Technology, Finland</i>
14:00-14:15	E.10.3	Development of instrumentation for 12-lead impedance cardiography <b>A. Mateasik, L. Bacharova, D. Jr Chorvat, P. Povinec,</b> <i>International Laser Center, Bratislava, Slovak Republic</i>
14:15-14:30	E.10.4	Comparable imaging of ECG and SPECT results and their superposition <b>D. Wei,</b> <i>The University of Aizu, Aizu-Wakawatsu/Fukushima, Japan</i>
14:30-14:45	E.10.5	Deriving the 12-lead electrocardiogram from four standard leads using information redundancy in the 12-lead system <b>G.Y. Kozmann, K. Haraszti, L. Gerencsér, Z.S. Vágó,</b> <i>University of Veszprém, Veszprém, Hungary</i>
14:45-15:00	E.10.6	Evaluation of a new signal processing approach of high-resolution BSPM <b>R. Krzyminiewski, G. Panek, R. Stępień, R. Junik, U. Schmidt,</b> <i>A.Mickiewicz University, Poznań, Poland</i>
		Correlation of results of SPECT examination and linear transformation method
<b>13:30-15:00</b>	<b>Session N.5</b>	<b>Brain Rhythms: From Milliseconds to Days</b>
13:30-14:00	N.5.1 (Invited)	<b>G. Pfurtscheller, M. Woertz,</b> <i>University of Technology, Graz, Austria</i> Inhibition of neural networks and EEG synchronization
14:00-14:30	N.5.2 (Invited)	<b>R. Godbout,</b> <i>Université de Montréal, Canada</i> EEG in activated states: waking and REM sleep
14:30-15:00	N.5.3 (Invited)	<b>R.E. Kronauer,</b> <i>Harvard University, USA</i> Computational models of the sleep wake cycle
<b>15:30-17:00</b>	<b>Session E.11</b>	<b>ECG &amp; VCG Analysis</b>
15:30-16:00	E.11.1	<b>J.E. Madias,</b> <i>Elmhurst Hospital Center, Elmhurst, NY, USA</i> Six new concepts in electrocardiography: Theoretical considerations, and applications in ECG diagnosis
16:00-16:15	E.11.2	<b>T. Huynh, P. Tran,</b> <i>McGill University Health Centre, Canada</i> Validation of electrocardiographic criteria of left atrial enlargement by transthoracic echocardiogram
16:15-16:30	E.11.3	<b>L. Bacharova, J. Klimas, K. Michalak, J. Kyselovic,</b> <i>International Laser Center, Bratislava, Slovak Republic</i> Inverse relationship between QRS amplitude and left ventricular mass in rats exposed to physical training
16:30-16:45	E.11.4	<b>P.R.B. Barbosa, L.C. Jr Bernardino, J. Barbosa-Filho, I. Cordovil, R.L.M. Sá, J. Nadal,</b> <i>Federal University of Rio de Janeiro, Brazil</i> Analysis of the normal and the fractionated conduction during ventricular activation using time-frequency magnitude squared-coherence mapping
<b>15:30-17:00</b>	<b>Session N.7</b>	<b>Evoked Potentials</b>

- 15:30-16:00 N.7.1 (Invited) **T. Picton**, *Rotman Research Institute, University of Toronto, Canada*  
Source analysis of auditory evoked electromagnetic fields
- 16:00-16:15 N.7.2 **K.B. Campbell, A. Muller-Gass, D.R. de Lugt**, *University of Ottawa, Canada*  
The effects of sleep onset on late auditory evoked potentials
- 16:15-16:30 N.7.3 **L. Ding, A. Goldstein, J. Lian, E. Donchin, B. He**,  
*University of Illinois at Chicago, USA*  
Cortical imaging of P300 component elicited by isolate words using different memory rehearsal strategies
- 16:30-16:45 N.7.4 **F. Babiloni, C. Babiloni, F. Carducci, T. Salvatore, P. Rossini, C. Del Percio, S. Salinari, F. Cincotti**, *University of Rome "La Sapienza", Italy*  
Cortical sources involved in the spatial working memory
- 16:45-17:00 N.7.5 **F. Cincotti, F. Babiloni, C. Babiloni, F. Carducci, J. Millán, Salinari, L. Bianchi, M.G. Marciiani**,  
*Fondazione Santa Lucia – IRCCS, Rome, Italy*  
The use of motor imagery as a way to communicate between a brain and a computer